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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,912	03/30/2004	Steven T. Fink	244562US6YA	3174

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EXAMINER	
MCDONALD, RODNEY GLENN	
ART UNIT	PAPER NUMBER
1753	

DATE MAILED: 08/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/811,912	FINK ET AL.	
	Examiner	Art Unit	
	Rodney G. McDonald	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *20* is/are allowed.

6)☒ Claim(s) *1-15,19,21-35 and 39-41* is/are rejected.

7)☒ Claim(s) *16-18 and 36-38* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 6, 7, 8, 19, 40 and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by Saito et al. (Japan 2000-077395). (See The Random House College Dictionary pg. 635 for definition of Honeycomb def. 6 - to be full of holes. The Examiner understands honeycomb to be a surface full of holes as evidenced by definition 6.)

Regarding claim 1, Saito et al. teach an optical window deposition shield 22 comprising a backing plate 43 with a through hole; a honeycomb structure 22 having a plurality of adjacent cells configured to allow optical viewing through the honeycomb structure, each cell having an aspect ratio of length and diameter sufficient to impede a processing plasma from traveling the full length of the cell; a coupling device 44 configured to couple the honeycomb core structure 22 to the backing plate 43 such that the honeycomb structure is aligned with at least a portion of the through hole in the backing plate 43. (See Machine translation paragraph 0038, 0039, 0031; Figure 6)

Regarding claim 6, the shield can comprise aluminum. (See Machine Translation paragraph 0024)

Regarding claims 7, 8, the shield can be coated with a protective coating of aluminum oxide (i.e. anodized aluminum). (See Machine Translation paragraph 0024)

Regarding claim 19, the coupling device comprises at least one threaded fastener 44 fixed to the backing plate and configured to hold the honeycomb structure in contact with the backing plate. (See Figure 6)

Regarding claim 40, Saito et al. teach an optical window deposition shield 22 comprising means 22 for impeding processing plasma from traveling into contact with a viewing window 21 of a plasma chamber. Means 33 for holding the means for impeding 22 within an opening of a chamber liner 11 used in the plasma chamber. (See Fig. 2)

Regarding claim 41, Saito et al. teach a method of impeding a processing plasma from traveling into contact with a viewing window of a plasma chamber by providing a mounting hole in a liner of the plasma chamber and fixedly mounting a honeycomb structure within the mounting hole, the honeycomb structure having a plurality of adjacent cells configured to allow optical viewing through the honeycomb structure, each cell having an aspect ratio of length to diameter sufficient to impede a processing plasma from traveling through the full length of the cell. (See Figure 2; Machine Translation 0021-0031)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2-5, 14, 15, 21-28, 34, 35 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al. (Japan 2000-077395).

Saito et al. is discussed above and all is as applies above. (See Saito et al. discussed above)

The difference between Saito et al. and the present claims is that the backing plate comprising aluminum sheet metal is not discussed (Claims 2, 22), the backing plate comprising anodized aluminum is not discussed (Claims 3, 23), the backing plate coupled to the chamber liner such that the through hole is at least partially aligned with a hole in the chamber liner is not discussed (Claims 4, 24), the through hole substantially contours the hole in the chamber liner is not discussed (Claims 5, 25), where the honeycomb structure is configured to fit snugly into a hole in a plasma processing chamber liner to provide a deposition shield within the hole in the chamber liner is not discussed (Claims 14, 34), the cells of the honeycomb structure having an aspect ratio of about four or more is not discussed (Claims 15, 35), the shield being coupled to the chamber liner through a backing plate is not discussed (Claim 21) and the coupling device comprising at least one threaded fastener fixed to the backing plate

and configured to hold the honeycomb structure in contact with the backing plate is not discussed (Claim 39).

Regarding claims 2, 22, as the liner shield 11 in Fig. 2 is shown to be the same material as the shield 22 the material of the liner shield is believed to be the same material as the shield 22. (See Fig. 2; Machine Translation 0024)

Regarding claims 3, 23, as the liner shield 11 in Fig. 2 is shown to be the same material as the shield 22 the material of the liner shield is believed to be the same material as the shield 22. (See Fig. 2; Machine Translation 0024)

Regarding claims 4, 24, in Fig. 6 a backing plate 43 is suggested for coupling the shield 22 with the chamber wall having the holes aligned. It is believed that this means 43 can be utilized in the embodiment of Figure 2 to couple the shield to the liner shield 11. (See Fig. 6 and Fig. 2)

Regarding claims 5, 25, the hole in the backing plate would contour the chamber liner 11 if the concepts of Fig. 2 and 6 were utilized together. (See Fig. 2 and 6)

Regarding claims 14, 34, in Fig. 2 the shield snugly fits in the chamber liner 11. (See Fig. 2)

Regarding claims 15, 35, the cells in the shield have an aspect ratio of four or more since the plasma is prevented from reaching the window. (see Machine translation paragraph 0031; Figure 2, 6)

Regarding claim 21, in Fig. 6 a backing plate 43 is suggested for coupling the shield 22 with the chamber wall having the holes aligned. It is believed that this means

43 can be utilized in the embodiment of Figure 2 to couple the shield to the liner shield 11. (See Fig. 6 and Fig. 2)

Regarding claim 39, the shield can be coupled by coupling devices 33 or 44 as shown in Figures 2 and 6.

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to have utilized a chamber liner in combination with a shield as taught by Saito et al. because it prevents damage to the observation window.

Claims 9-13 and 29-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al. as applied to claims 2-5, 14, 15, 21-28, 34, 35 and 39 above, and further in view of Nishimoto et al. (U.S. Pat. 6,798519).

The material of the protective coating is not discussed (Claims 9-13 and 29-33).

Regarding claims 9-13 and 29-33, Nishimoto teach a deposition shield provided with a protective coating. The protective barrier can include an oxide of aluminum. In another embodiment the protective barrier can comprise a mixture of alumina and yttria. In another embodiment the protective barrier of at least one of a III-column element and a Lanthanon element. In another embodiment the III-column element can comprise at least one of Yttrium, Scandium, and Lanthanum. In another embodiment, the Lanthanon elment can comprise at least one of Cerium, Dysprosium, and Europium. In another embodiment the compound forming the protective barrier can comprise at least one of yttria, Sc_2O_3, Sc_2F_3, YF_3, La_2O_3, CeO_2, Eu_2O_3 and DyO_3. (Column 7 lines 9-24)

The motivation for utilizing a protective barrier for the shield is that it provides a protective barrier for the shield. (Column 7 lines 9-25)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Saito et al. by utilizing a protective barrier as taught by Nishimoto et al. because it allows for providing a barrier for the deposition shield.

Allowable Subject Matter

Claims 16-18, 36-38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 20 is allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 16 and 36 are indicated as being allowable over the prior art of record because the prior art of record does not teach the claimed subject matter including the coupling device comprising a retaining flange that is detachably coupled to the backing plate by press contact when the backing plate is coupled to the chamber liner.

Claims 17, 18, 37 and 38 are indicated as being allowable over the prior art of record because the prior art of record does not teach the claimed subject matter including the coupling device comprising at least one retaining pin fixed to the backing plate and configured to engage at least one cell of the honeycomb structure when the honeycomb structure is pressed over the at least one retaining pin.

Claim 20 is indicated as being allowable over the prior art of record because the prior art of record does not teach the optical window deposition shield as claimed

including a clip device configured to hold opposing ends of the honeycomb planar sheet together to form a substantially continuous liner of honeycomb material configured to line the chamber wall of a plasma processing chamber.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Saito et al. (U.S. Pat. 6,562,186) is the corresponding U.S. Patent to the Japanese Patent 2000-077395 cited in the rejection.

The Random House College Dictionary, 1982, pg. 635 definition of honeycomb. Specifically see def. 6. to be full of holes; pierce with many hoes or cavities.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney G. McDonald whose telephone number is 571-272-1340. The examiner can normally be reached on M- Th with Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Rodney G. McDonald
Primary Examiner
Art Unit 1753

RM
August 16, 2006